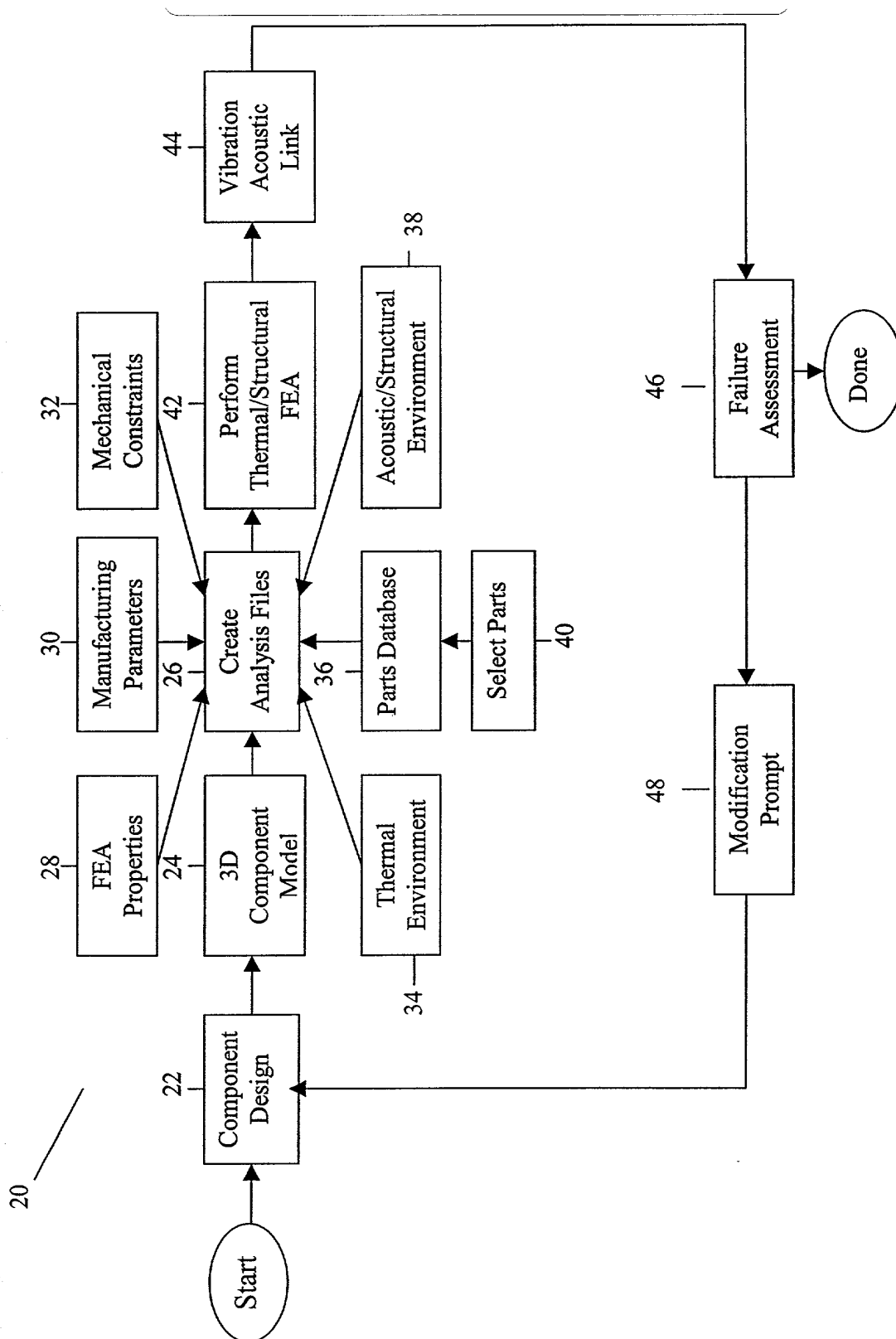


FIG. 1.



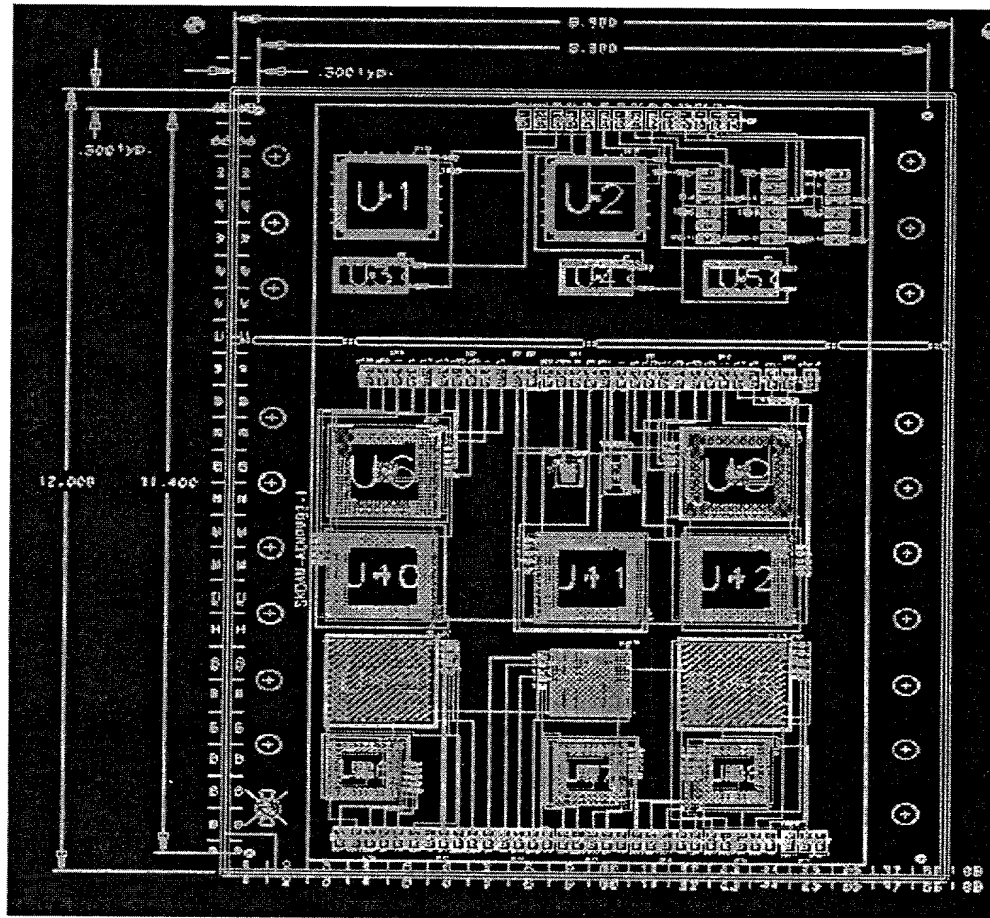


FIG. 2.

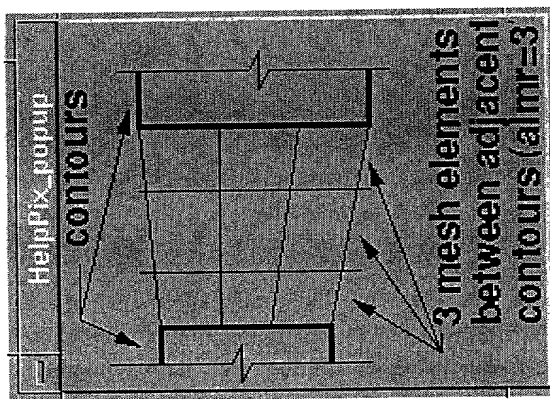
202400464007

Figure 3

The screenshot shows the 'MentorFiles' dialog box with the following settings:


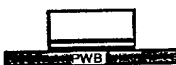



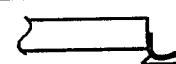
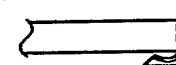
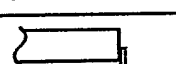
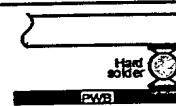
- Part Geometry:**
 - Target Mesh Size (ms): $2.000e-0$
 - Minimum Component Area (ma): 1.07
 - ☒ Use Bounding Boxes Instead of Actual Geometry (ue)
- Mesh Properties:**
 - ☒ Show Help
 - ☒ Mesh Properties
 - ☐ Material Properties
- Scale Properties to Target Mesh Size:**
 - Number of Subdivisions of Line Segments (lmr): 2
 - Number of Mesh Subdivisions between Parallel Lines (almr): $4.000e-0$
 - Maximum line segment length (fc): $8.000e-0$
 - Chamfer Threshold (dgc): $4.000e-0$
 - Minimum Vertices for Contours (polygons) (st): 10
 - Minimum Chord Length for Arc Idealization (sc): $2.000e-0$
 - Parallel Line Discrimination Distance (plmc): $5.000e-0$
 - Point Discrimination Distance - COVER (sclo): $5.000e-0$
 - Point Discrimination Distance - PWB (dsla): $4.000e-0$
- Mentor Resolution (e):** $1e-5$
- Help for selected field:**

Adjacent contours within a distance of "almr" will be considered when constructing the mesh for a contour.
- Buttons:** Cancel, Apply, Reset to Defaults



Help for selected field

FIG. 4.

	Durability Module	Description	Configuration
	CCC	Leadless chip component	
54 —	DIO	Planar-diode package	
52 —	IND	Inductor feedthrough foil	
58 {	Hybrid-GW	Gull wing	
	Hybrid-SGW	Spider gull wing	
56 {	L-lead	L-leaded component	
	J-lead	J-leaded component	
	PTH	Plated-through-hole component	
59 —	PBGA	Plastic ball grid arrays	

20241210 11:54:40

20221220 11:56:2000

Title: Method, System and Computer Program Product for
Multidisciplinary Design Analysis of Structural Components
Inventor(s): Mostafa Rassaian
Application No: To be assigned
Atty Dkt No: 38190/235695

Part Number

Package Name

Lead Style Name

Lead Material Name

172908-00K

313 BGA Package 100milpitch

CU

173332-00P

TU1-TSOP-54_10x22mm HYBRID 002K

CU

173334-11J

pgrip 208 1e HYBRID 024

173370-UUL

360 CBGA Package

173446-00K

388 BGA Package

280-10020-101

280-10020-101

280-10025-101

280-10025-101

280-10025-102

280-10025-102

280-10025-103

280-10025-103

280-10025-104

280-10025-104

Durability Part Number Table

Package Name

Substrate Length

Substrate Width

Balls

Thrm Balls X

Thrm Balls Y

144 BGA Package

0.512

0.512

144

0

0

144 BGA Package ana

0.512

0.512

144

0

0

313 BGA Package 100milpitch

1.380

1.380

169

0

1

313 BGA Package 50milpitch

1.380

1.380

625

0

0

324 BGA Package

0.906

0.906

324

6

6

352 BGA Package

1.378

1.378

352

0

0

360 CBGA Package

0.980

0.980

361

0

0

388 BGA Package

1.378

1.378

388

6

6

Dummy BGA Package

0.512

0.512

144

12

12

lrd_pbga_225f_025

1.180

1.180

225

0

0

New

Copy

Delete

OK

Reset

Cancel

FIG. 5.

Part Number

Package Name

Lead Style Name

Lead Material Name

172908-00K	313 BGA Package 100mil pitch		CU
173332-00P	TJ-TSOP-54 10x22mm	HYBRID_002K	CU
173334-14V	PDIP 208 1e	HYBRID_024	CU
173340-00Z	36U CPGA Package		
173446-00K	388 BGA Package		
280-10020-101	280-10020-101		
280-10025-101	280-10025-101		
280-10025-102	280-10025-102		
280-10025-103	280-10025-103		
280-10025-104	280-10025-104		
280-10025-105	280-10025-105		

Lead Style Name

S1

S2

S3

RHO

R1

R2

E

H1

D

T1

900-11695-f1g1	U.000	U.000	U.000	U.000	U.000	U.000	U.000	U.000	U.000	U.000
HYBRID_001	0.000	0.030	0.000	0.000	0.000	0.013	0.000	0.047	0.014	0.015
HYBRID_002	0.005	0.080	0.008	0.000	0.750	0.630	0.008	0.008	0.050	0.010
HYBRID_002a	0.020	0.030	0.035	0.000	0.005	0.005	0.105	0.105	0.026	0.007
HYBRID_002b	0.025	0.030	0.055	0.000	0.005	0.005	0.000	0.057	0.007	0.010
HYBRID_002c	0.010	0.030	0.056	0.000	0.005	0.005	0.000	0.035	0.006	0.006
HYBRID_002d	0.000	0.006	0.021	0.000	0.005	0.005	0.000	0.040	0.018	0.004
HYBRID_002e	0.000	0.006	0.021	0.000	0.001	0.001	0.000	0.050	0.017	0.011
HYBRID_002f	0.016	0.013	0.051	0.000	0.005	0.005	0.000	0.072	0.009	0.004
HYBRID_002g	0.037	0.012	0.071	0.000	0.006	0.006	0.000	0.063	0.012	0.005
HYBRID_002h	0.008	0.019	0.041	0.000	0.005	0.005	0.000	0.029	0.017	0.009
HYBRID_002i	0.007	0.026	0.052	0.000	0.005	0.005	0.000	0.076	0.018	0.009
HYBRID_002j	0.000	0.040	0.060	0.000	0.005	0.005	0.000	0.030	0.027	0.010
HYBRID_002k	0.001	0.020	0.031	0.000	0.005	0.005	0.000	0.050	0.025	0.014
HYBRID_003	0.030	0.040	0.120	0.000	0.005	0.005	0.000	0.028	0.012	0.006
HYBRID_004	0.030	0.040	0.120	0.000	0.020	0.020	0.050	0.050	0.010	0.010
HYBRID_005	0.030	0.040	0.120	0.000	0.020	0.020	0.060	0.060	0.010	0.010
HYBRID_006	0.030	0.040	0.150	0.000	0.020	0.020	0.040	0.040	0.030	0.010
HYBRID_007	0.030	0.060	0.140	0.000	0.020	0.020	0.200	0.200	0.009	0.009

New

Copy

Delete

OK

Reset

Cancel

FIG. 6.

Durability Part Number Table

Part Number	Package Name	Lead Style Name	Lead Material Name
172908-00K	313 BGA Package 100milpitch		
173332-00P	T11 TSOP-54 10x22mm HYBRID_002K		CU
173334-11J	P4fp 208 Pin HYBRID_024		CU
173370-00U	36U CPGA Package		
173446-00K	388 BGA Package		
260-10020-101	280-10020-101		
280-10025-101	280-10025-101		
280-10025-102	280-10025-102		
280-10025-103	280-10025-103		
280-10025-104	280-10025-104		
280-10025-105	280-10025-105		

Material Table

Name	Exp Coef	Density	Heat Capacity	Poisson	Shear Mod	Therm Cond	Strength	Young Mod
63SN37PB	21.400	8378.00	214.000	0.370	1.1280	51.000	3880.000	3.600
ABLEFOND360	45.000	3400.00	1000.000	0.350	360.000	2.900	2000.000	0.722
AL	21.600	2712.00	920.000	0.330	7.600	161.000	3900.000	10.600
ALBEMET	13.900	2100.00	1926.000	0.140	11.400	296.000	5900.000	26.000
ALB POLY	13.980	1866.00	1574.000	0.210	6.920	164.580	3280.000	6.500
ALHONEY	21.600	500.00	920.000	0.330	2.440	29.000	3900.000	6.300
ALUMINA	7.100	3847.00	960.000	0.220	25.600	27.600	29450.000	40.000
AU	14.200	19400.00	127.000	0.420	3.980	315.000	14900.000	11.310
AUSN	15.900	14510.00	163.000	0.300	3.300	57.000	40000.000	8.600
BRAZE	21.600	244.00	920.000	0.330	20.000	14.500	10000.000	5.300
BT LAMINATE	15.000	1439.00	1135.000	0.300	1.330	0.310	3980.000	2.460
CER-A	6.000	3847.00	960.000	0.220	16.390	27.600	28450.000	40.000
CER-B	9.000	2800.00	800.000	0.300	16.390	0.900	28450.000	40.000
CER-C	11.000	2800.00	800.000	0.300	16.390	0.900	28450.000	40.000
CER-D	6.500	3847.00	960.000	0.220	25.600	27.600	28450.000	40.000
CER-E	6.000	3847.00	960.000	0.220	16.390	27.600	28450.000	40.000
CER-F	9.000	2800.00	800.000	0.300	16.390	0.900	28450.000	40.000
CER-G	11.000	2800.00	800.000	0.300	16.390	0.900	28450.000	40.000
CER-H	6.500	3847.00	960.000	0.220	25.600	27.600	28450.000	40.000

New Copy Delete
OK Reset Cancel

FIG. 7.

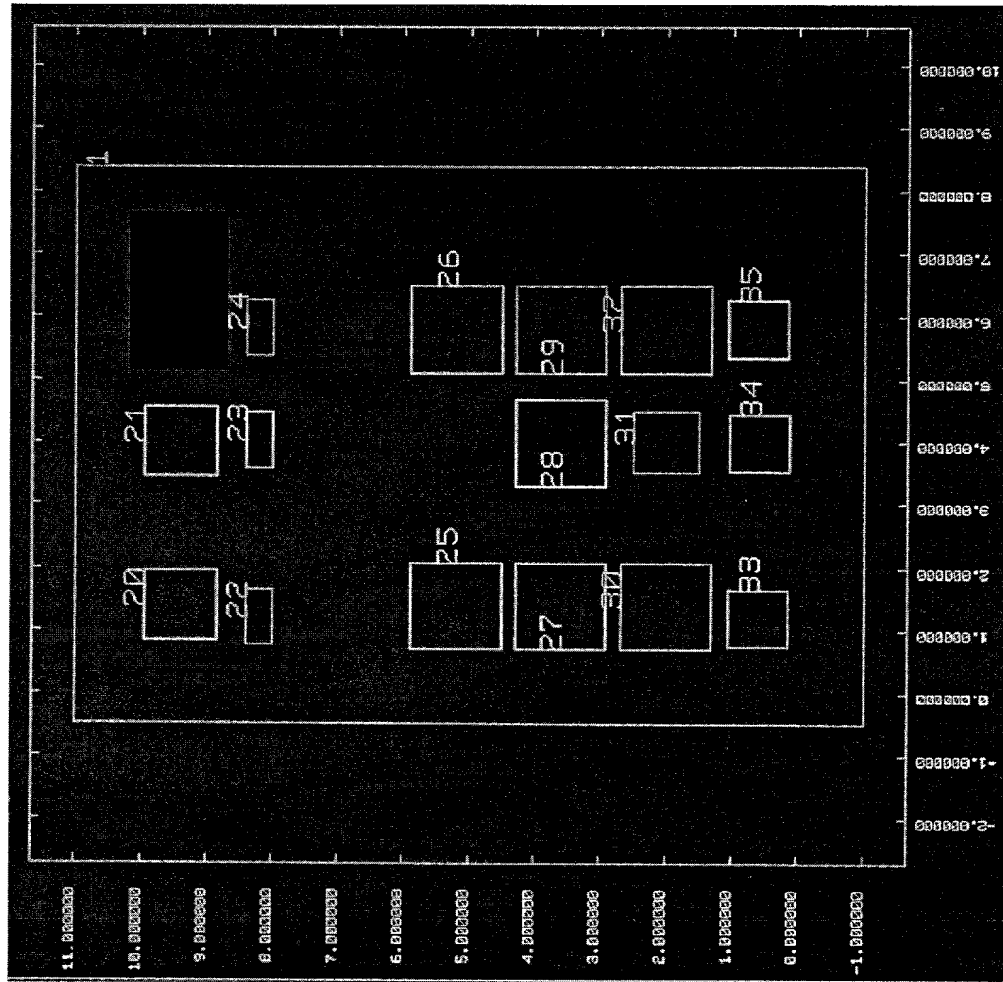


FIG. 8.

FIG. 9

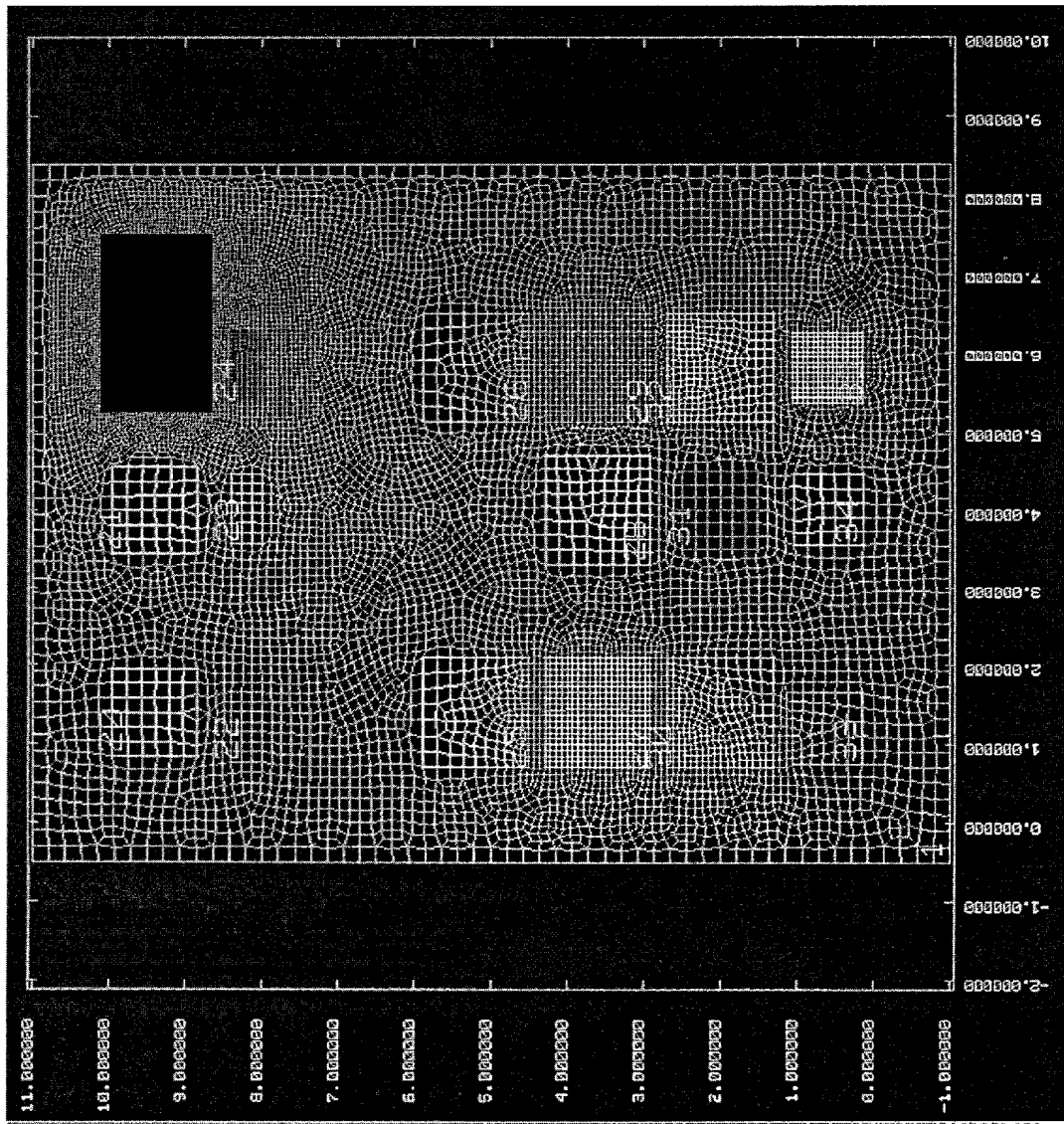
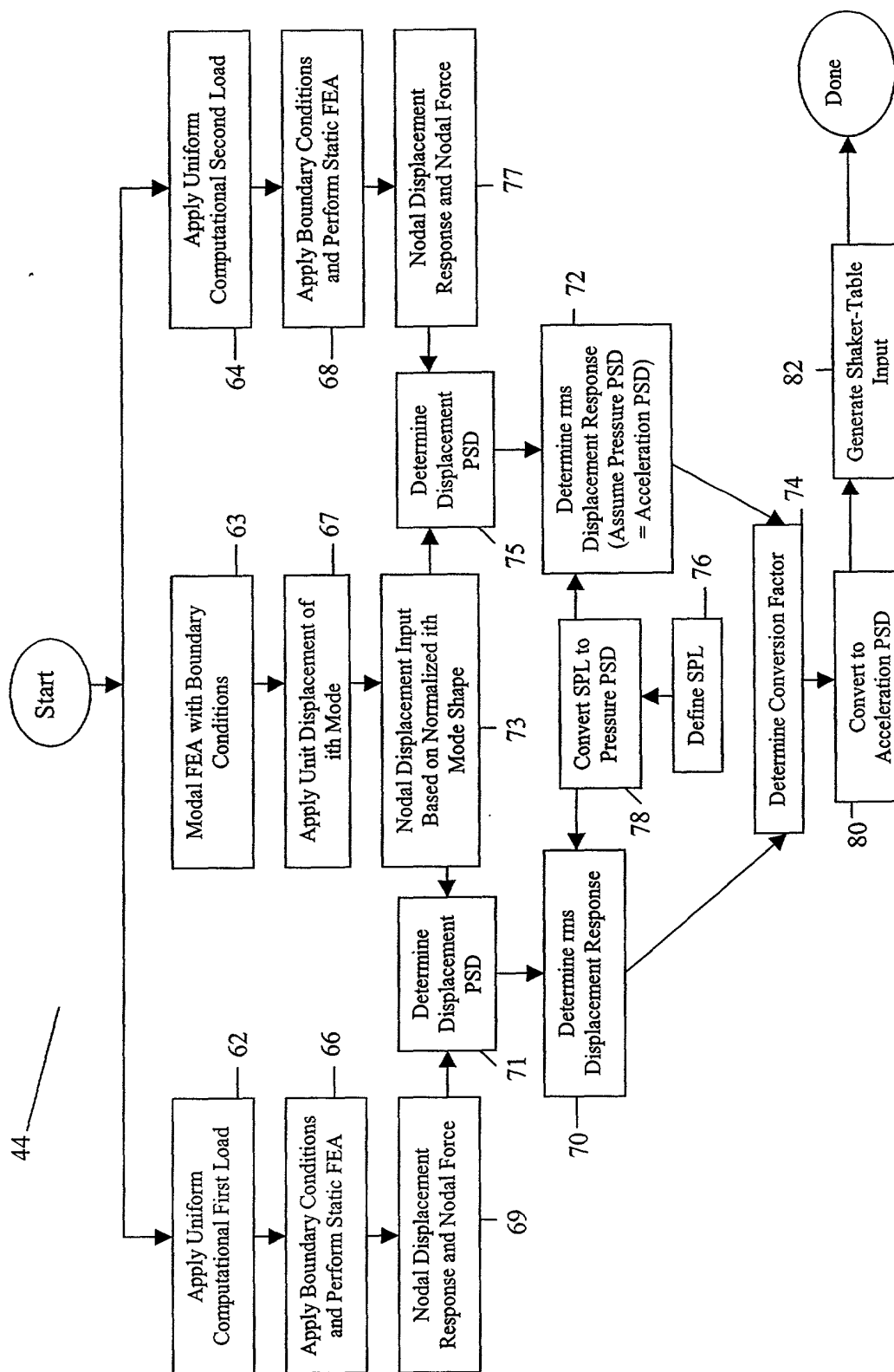


FIG. 9.

FIG. 10.



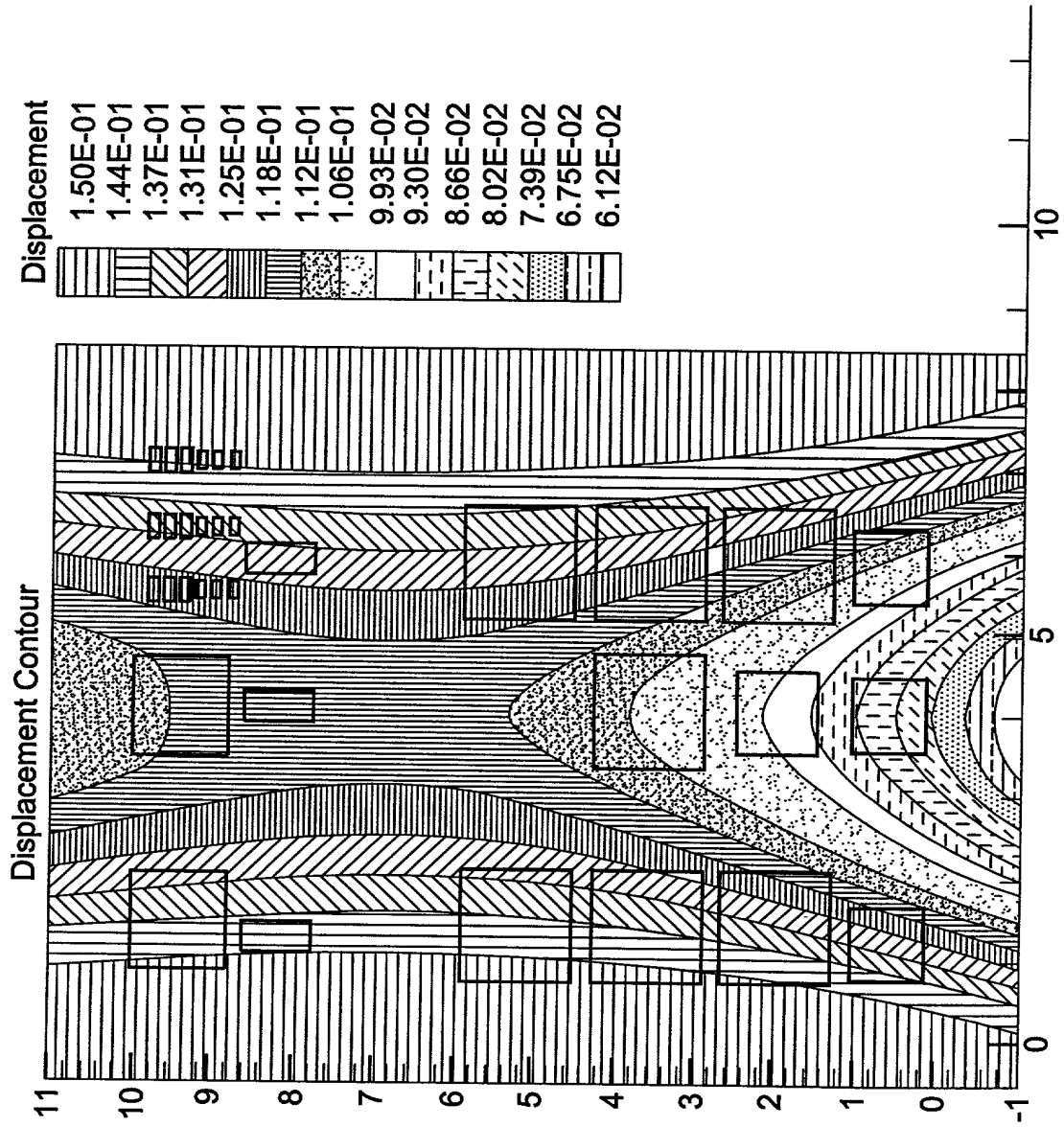


FIG. 11.

FIG. 12.

